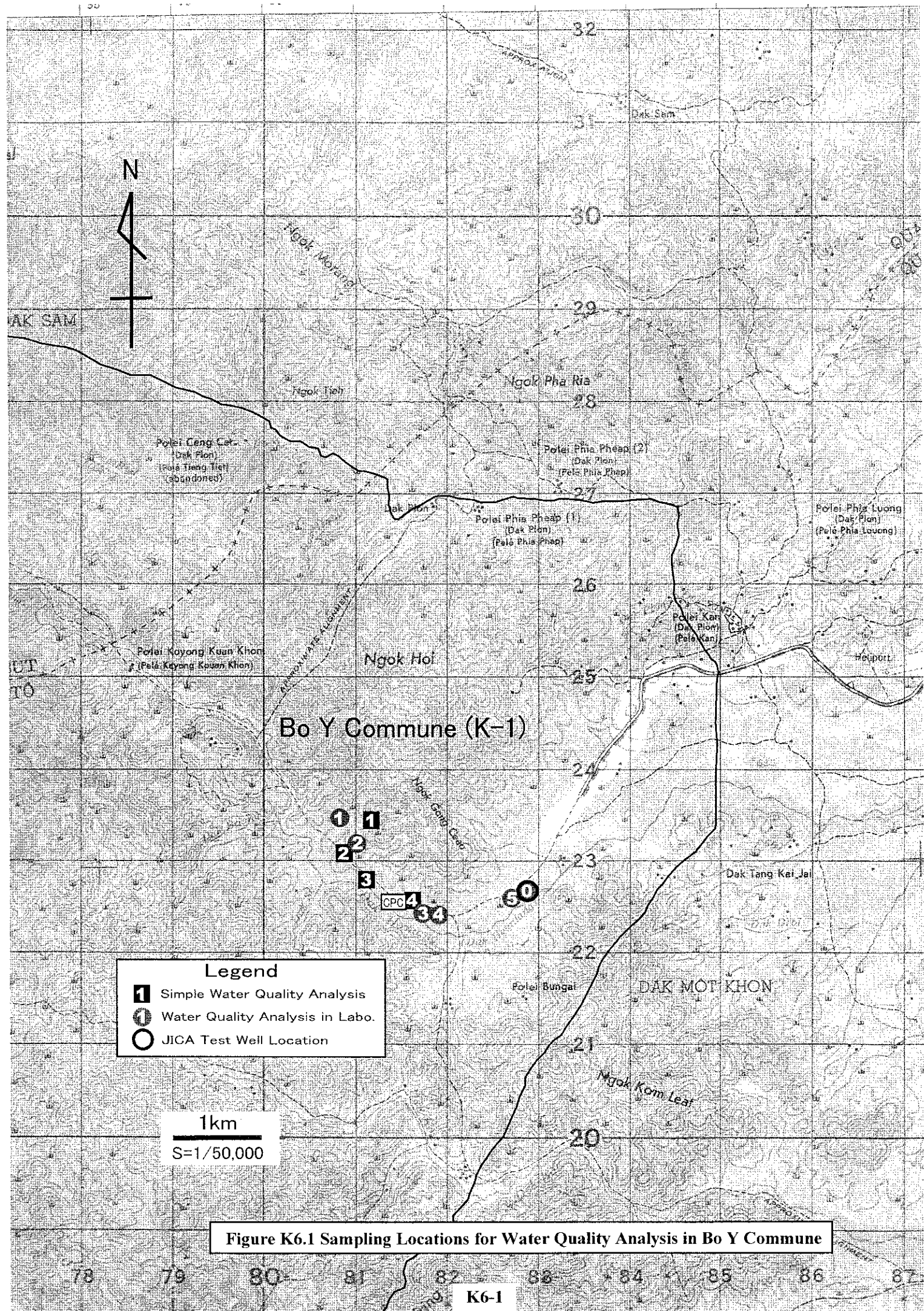


Chapter 6

Water Quality Test Data



Legend

- 1 Simple Water Quality Analysis
- Water Quality Analysis in Labo.
- JICA Test Well Location

1km
S=1/50,000

Figure K6.1 Sampling Locations for Water Quality Analysis in Bo Y Commune

Table K6. 1 Data Sheet : Result of Water Quality Analysis

Location	Bo Y Commune (K-1)											
Sample No.	K-1-0		K-1-1		K-1-2		K-1-3		K-1-4		K-1-5	
Location No.	100		6		97		26		27		101	
Name	JICA K-1		Frontier Guard		Banboo System		GFS Tank - 7		Ms. Nga		Mr. Son	
Type	Drilling Well		Gravity Flow System		Gravity Flow System		Gravity Flow System		Dug Well		Dug Well	
Latitude / Longitude	14°40.060 / 107°37.319		14°40.437 / 107°36.193		14°40.262 / 107°36.220		14°39.885 / 107°36.599		14°37.873 / 107°36.650		14°40.090 / 107°37.256	
Elevation	654		690		670		654		654		654	
Date	18-Jun-01		15-May-01		15-May-01		15-May-01		15-May-01		15-May-01	
Time	9:30		13:00		10:00		10:25		11:00		11:30	
Flow Quantity	-		-		20~30 l/min		-		-		-	
Well Depth GL-(m)	170.0		-		-		-		4.15		7.0	
Groundwater Table GL-(m)	-		-		-		-		3.00		1.0	
Water Temperature (°C)	26.8		24.7		23.6		24.2		24.6		24.7	
pH	7.25		8.23		6.59		8.17		5.32		6.79	
Ec (μ S/cm)	183.6		126.8		42.1		126.9		84.6		168.4	
DO (mg/l)	2.23		2.38		3.32		3.59		2.69		2.06	
TDS (mg/l)	151.457		73.795		38.800		111.850		33.465		123.957	
Ca ²⁺ (mg/l)	16.20		8.38		3.10		13.14		2.82		17.84	
Mg ²⁺ (mg/l)	7.557	3	6.500	1	2.940	1	8.080	-	0.571	-	2.685	1
Na ⁺ (mg/l)	9.89		2.07		1.15		2.76		3.68		3.68	
K ⁺ (mg/l)	2.028		0.546		2.418		1.053		5.460		11.310	
HCO ₃ ⁻ (mg/l)	111.75		52.03		25.50		83.51		1.28		81.80	
Cl ⁻ (mg/l)	0.142		0.426		0.142		0.284		3.621		0.497	
SO ₄ ²⁻ (mg/l)	3.90		3.84		3.55		3.02		16.03		6.14	
Total Fe (mg/l)	3.55	1	0.45	0.2	0.53	0.2	0.16	-	0.68	-	0.52	0.2
NO ₂ -N (mg/l)	<0.001	<0.02	<0.001	<0.02	<0.001	<0.02	<0.001	-	<0.001	-	0.010	0.02
NO ₃ -N (mg/l)	0.01	<1	0.01	<1	0.03	<1	0.02	-	5.82	-	0.19	1
NH ₄ ⁺ (mg/l)	0.028	0.2	0.058	-	0.044	-	0.050	-	0.040	-	0.070	-
PO ₄ ³⁻ (mg/l)	0.09	0.7	0.05	-	<0.01	-	<0.01	-	<0.01	-	0.05	-
COD/KMnO ₄ (mg/l)	0.315	-	3.230	10	3.390	5	1.260	-	1.180	-	0.551	5
F (mg/l)	0.0300	0	0.0707	-	0.1808	-	0.0659	-	0.1373	-	0.2081	-
As (mg/l)	0.0010	<0.2, (0.00)	0.0050	<0.2, (0.00)	0.0037	<0.2	0.0029	-	0.0033	-	0.0026	<0.2, (0.00)
Mn ²⁺ (mg/l)	0.1000	<0.5	0.1411	<0.5	0.0302	<0.5	0.0350	-	0.0375	-	0.0735	<0.5
Coliform (MPN/100ml)	33	0	5,400	-	920	-	920	-	280	-	1,600	-

*Left Column : by Laboratory Test, Right Column : by Simple Test **As () : by Hironaka Kit

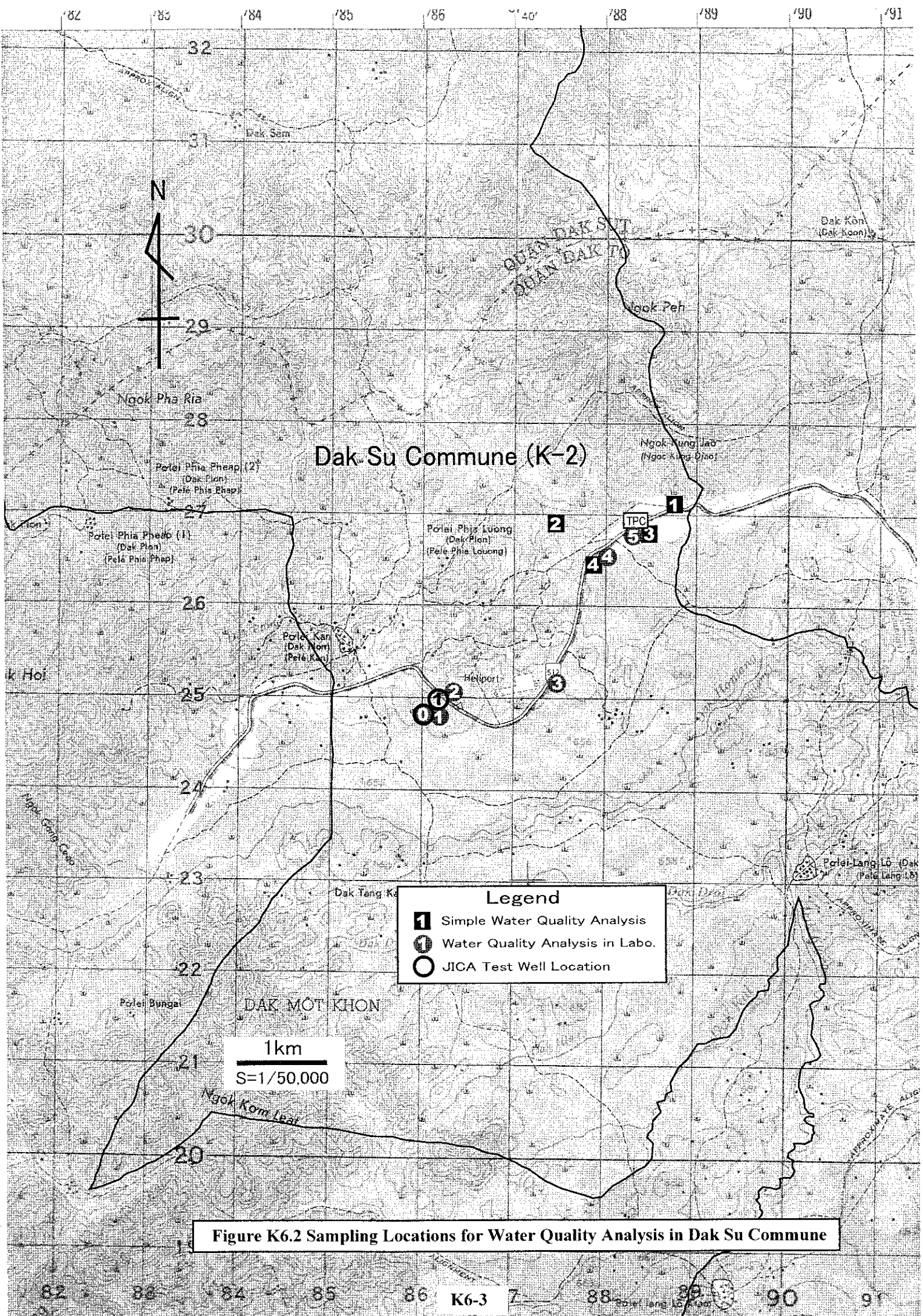


Figure K6.2 Sampling Locations for Water Quality Analysis in Dak Su Commune

Table K6.2 Data Sheet : Result of Water Quality Analysis

Location	Dak Su Commune (K-2)											
Sample No.	K-2-0		K-2-1		K-2-2		K-2-3		K-2-4		K-2-5	
Location No.	32		17		16		9		4		1	
Name	JICA K-2-2		Mr. Tong		Ms. Su		Mr. Thap		Ms. Y Nen		Mr. Chuyen	
Type	Drilling Well		Dug Well		Dug Well		Dug Well		Dug Well		Dug Well	
Latitude / Longitude	14°40.946 / 107°39.142		14°40.949 / 107°39.136		14°41.207 / 107°39.207		14°41.327 / 107°39.876		14°41.943 / 107°40.067		14°42.141 / 107°40.368	
Elevation	660		660		682		669		664		659	
Date	19-Jun-01		13-May-01		13-May-01		13-May-01		13-May-01		13-May-01	
Time	9:30		15:25		14:50		11:30		10:25		9:30	
Flow Quantity	-		-		-		-		-		-	
Well Depth GL-(m)	70.0		3.12		10.82		7.96		7.66		10.70	
Groundwater Table GL-(m)	-		2.44		9.50		6.89		5.46		6.20	
Water Temperature (°C)	24.1		25.4		24.8		23.7		24.2		24.3	
pH	7.23		5.35		6.07		5.27		4.93		5.30	
Ec (µ S/cm)	178.7		13.14		61.1		23.5		18.94		47.0	
DO (mg/l)	1.75		2.65		3.37		2.56		2.97		2.77	
TDS (mg/l)	151.873		7.374		50.219		15.988		9.029		13.874	
Ca ²⁺ (mg/l)	16.28		0.86		8.38		1.88		0.78		1.88	
Mg ²⁺ (mg/l)	8.432	3	0.401	0	1.057	-	1.276	0.5	0.753	-	0.389	-
Na ⁺ (mg/l)	9.66		0.46		1.61		0.46		0.69		1.61	
K ⁺ (mg/l)	1.950		0.195		1.326		1.131		0.273		0.624	
HCO ₃ ⁻ (mg/l)	112.61		0.85		30.20		2.99		0.61		0.73	
Cl ⁻ (mg/l)	1.985		0.284		0.355		0.284		0.355		1.775	
SO ₄ ²⁻ (mg/l)	0.96		4.32		7.30		7.97		5.57		6.86	
Total Fe (mg/l)	2.64	2	0.15	0.2	0.14	-	0.13	0.2	0.16	-	0.29	-
NO ₂ -N (mg/l)	<0.001	<0.02	<0.001	<0.02	<0.001	-	<0.001	<0.02	<0.001	-	0.010	-
NO ₃ -N (mg/l)	0.01	<1	0.09	<1	0.18	-	0.34	<1	1.02	-	2.43	-
NH ₄ ⁺ (mg/l)	0.031	0	0.066	-	0.062	-	0.0061	-	0.081	-	0.065	-
PO ₄ ³⁻ (mg/l)	0.07	0.5	<0.01	-	<0.01	-	<0.01	-	<0.01	-	<0.01	-
COD/KMnO ₄ (mg/l)	0.157	-	0.708	5	0.315	-	0.787	20	0.236	-	0.472	-
F (mg/l)	0.0100	0	0.0420	-	0.1006	-	0.0601	-	0.0768	-	0.0870	-
As (mg/l)	0.0010	<0.2, (0.00)	0.0039	<0.2, (0.00)	0.0035	-	0.0035	<0.2, (0.00)	0.0028	-	0.0036	-
Mn ²⁺ (mg/l)	0.0650	<0.5	0.0375	<0.5	0.0424	-	0.0326	<0.5	0.2201	-	0.0318	-
Coliform (MPN/100ml)	33	0	920	-	540	-	1,600	-	1,600	-	920	-

K6-4

*Left Column : by Laboratory Test, Right Column : by Simple Test **As () : by Hironaka Kit

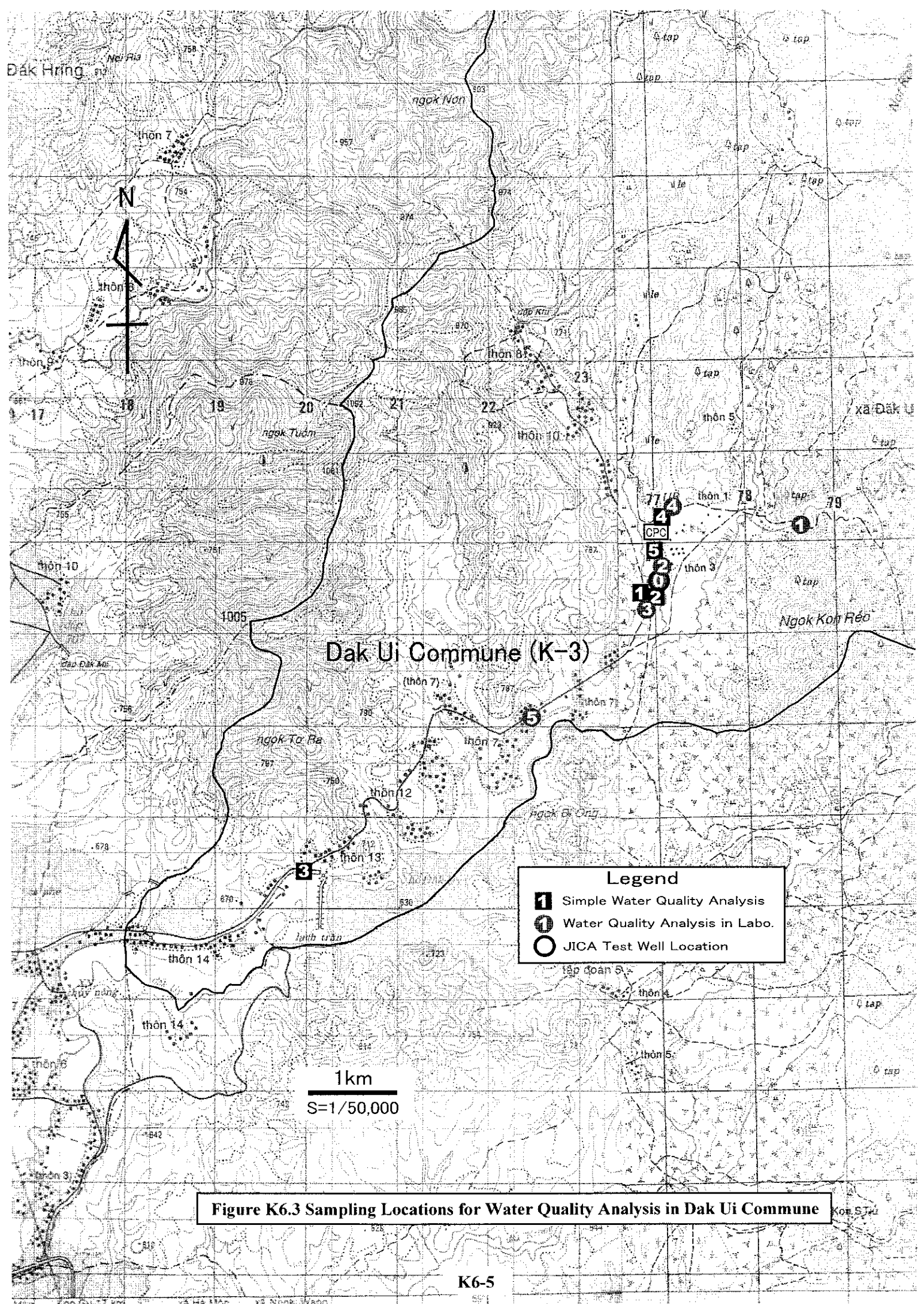
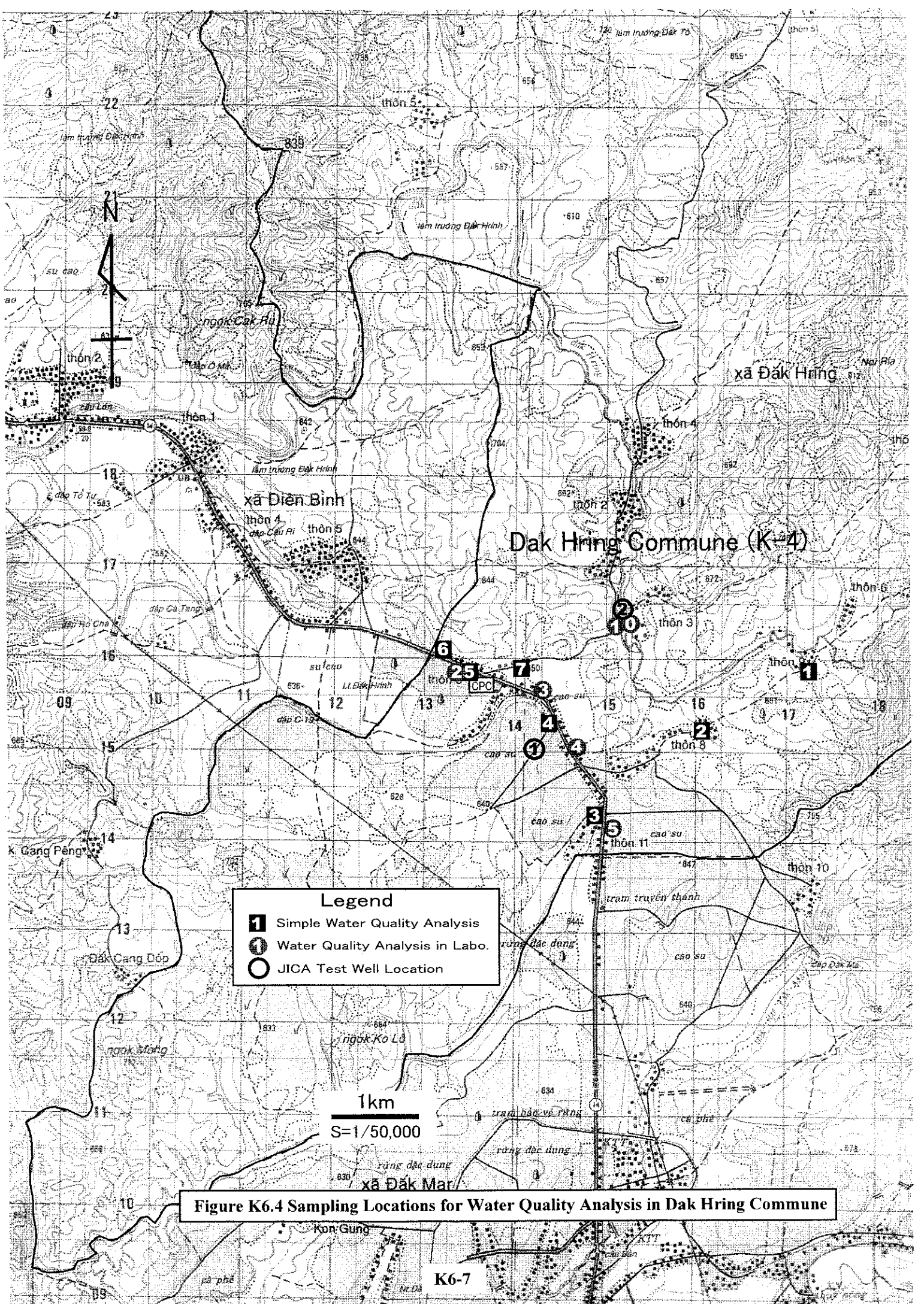


Figure K6.3 Sampling Locations for Water Quality Analysis in Dak Ui Commune

Table K6. 3 Data Sheet : Result of Water Quality Analysis

Location	Dak Ui Commune (K-3)											
	K-3-0		K-3-1		K-3-2		K-3-3		K-3-4		K-3-5	
Sample No.	108		2		104		105		24		51	
Location No.	108		2		104		105		24		51	
Name	JICA K-3		Stream (Intake)		Health Service Center		Bamboo System Outlet		Secondary School		Mr. Vinh	
Type	Drilling Well		Stream		Dug Well		Gravity Flow System		Dug Well		Dug Well	
Latitude / Longitude	14°34.275 / 108°00.313		14°34.516 / 108°01.055		14°34.267 / 108°00.325		14°34.008 / 108°00.180		14°34.632 / 108°00.382		14°33.378 / 107°59.446	
Elevation	660		660		662		685		662		659	
Date	25-Jun-01		12-May-01		12-May-01		12-May-01		12-May-01		12-May-01	
Time	9:30		14:00		14:30		15:05		15:30		16:00	
Flow Quantity	-		-		-		30~40 l/min		-		-	
Well Depth GL-(m)	160.0		-		3.46		-		3.90		13.46	
Groundwater Table GL-(m)	-		-		2.24		-		2.15		12.94	
Water Temperature (°C)	24.7		24.4		25.4		24.1		25.3		25.3	
pH	7.19		7.59		5.57		7.59		5.72		5.88	
Ec (μ S/cm)	864		132.2		45.3		142.3		50.9		68.0	
DO (mg/l)	1.17		3.85		1.58		3.78		2.21		2.95	
TDS (mg/l)	597.608		119.951		23.230		125.694		30.987		48.309	
Ca ²⁺ (mg/l)	151.38		14.88		2.90		13.88		2.74		2.16	
Mg ²⁺ (mg/l)	10.753	5	7.679	2	0.437	0.5	8.602	-	0.486	0.5	4.398	-
Na ⁺ (mg/l)	6.44		4.83		2.07		3.68		4.37		2.76	
K ⁺ (mg/l)	0.663		1.209		1.053		1.911		2.340		1.755	
HCO ₃ ⁻ (mg/l)	184.71		84.18		11.59		91.74		12.75		30.93	
Cl ⁻ (mg/l)	0.496		0.213		0.284		0.213		3.550		0.213	
SO ₄ ²⁻ (mg/l)	243.18		6.96		4.90		5.66		4.75		6.10	
Total Fe (mg/l)	3.49	2	0.28	<0.2	0.14	<0.2	1.05	-	0.22	<0.2	0.21	-
NO ₂ -N (mg/l)	0.005	<0.02	<0.001	<0.02	<0.001	<0.02	<0.001	<0.02	<0.001	<0.02	<0.001	-
NO ₃ -N (mg/l)	0.03	<1	0.02	<1	0.16	<1	0.02	-	0.35	<1	0.74	-
NH ₄ ⁺ (mg/l)	0.046	0.2	0.070	-	0.060	-	0.031	-	0.045	-	0.044	-
PO ₄ ³⁻ (mg/l)	0.04	<0.2	<0.01	-	<0.01	-	0.09	-	<0.01	-	<0.01	-
COD/KMnO ₄ (mg/l)	0.630	-	1.259	20	0.551	20	1.810	-	0.630	20	0.551	-
F (mg/l)	1.3200	2	0.0851	-	0.0658	-	0.0677	-	0.0843	-	0.0647	-
As (mg/l)	0.0050	<0.2	0.0033	<0.2, (0.00)	0.0026	<0.2	0.0031	-	0.0034	<0.2, (0.00)	0.0033	-
Mn ²⁺ (mg/l)	0.1211	<0.5	0.0427	<0.5	0.1505	<0.5	0.0455	-	0.0375	<0.5	0.0377	-
Coliform (MPN/100ml)	13	0	2,400	-	1,600	-	3,500	-	920	-	540	-

*Left Column : by Laboratory Test, Right Column : by Simple Test **As () : by Hironaka Kit



Legend

- 1** Simple Water Quality Analysis
- ①** Water Quality Analysis in Labo.
- JICA Test Well Location

1km
S=1/50,000

Figure K6.4 Sampling Locations for Water Quality Analysis in Dak Hring Commune

Table K6. 4 Data Sheet : Result of Water Quality Analysis

Location	Dak Hring Commune (K-4)											
	K-4-0		K-4-1		K-4-2		K-4-3		K-4-4		K-4-5	
Sample No.	44		36		4		26		14		23	
Location No.	44		36		4		26		14		23	
Name	Dak Rin River		Mr Bo Lem		Mr. Lan		Mr. Su		Mr. Vui		Mr. Suc	
Type	River		Dug Well		Dug Well		Dug Well		Dug Well		Dug Well	
Latitude / Longitude	14°35.870 / 107°55.392		14°35.876 / 107°55.388		14°35.461 / 107°54.575		14°35.358 / 107°54.318		14°34.971 / 107°55.178		14°34.478 / 107°55.316	
Elevation	603		605		667		660		675		660	
Date	4-Jun-01		12-May-01		11-May-01		12-May-01		11-May-01		11-May-01	
Time	16:40		11:20		10:40		9:30		13:30		15:45	
Flow Quantity	-		-		-		-		-		-	
Well Depth GL-(m)	-		2.65		17.06		7.75		13.23		11.29	
Groundwater Table GL-(m)	-		2.38		16.28		7.35		12.27		11.00	
Water Temperature (°C)	26.7		24.4		26.7		25.8		25.3		25.0	
pH	7.13		5.54		5.38		5.19		5.46		4.55	
Ec (μ S/cm)	66.6		24.3		22.0		20.3		33.7		13.10	
DO (mg/l)	3.15		2.55		3.14		3.26		2.65		3.15	
TDS (mg/l)	50.979		14.997		10.432		12.371		28.419		3.981	
Ca ²⁺ (mg/l)	5.12		0.80		1.44		1.38		5.42		0.22	
Mg ²⁺ (mg/l)	3.074	2	0.656	0.5	0.437	-	0.571	-	0.705	0	0.267	-
Na ⁺ (mg/l)	2.30		1.61		0.92		0.92		0.46		0.23	
K ⁺ (mg/l)	1.833		1.170		0.195		0.468		1.053		0.195	
HCO ₃ ⁻ (mg/l)	36.66		6.41		0.79		0.98		17.69		0.67	
Cl ⁻ (mg/l)	0.071		0.852		0.071		0.568		0.355		0.142	
SO ₄ ²⁻ (mg/l)	1.92		3.50		6.58		7.49		2.74		2.26	
Total Fe (mg/l)	1.88	0.5	0.99	<0.2	0.44	-	0.18	-	0.29	<0.2	0.21	-
NO ₂ -N (mg/l)	0.002	<0.02	<0.001	<0.02	<0.001	<0.02	<0.001	<0.02	<0.001	<0.02	<0.001	<0.02
NO ₃ -N (mg/l)	0.11	<1	0.71	2	0.32	-	1.11	-	0.20	<1	0.22	-
NH ₄ ⁺ (mg/l)	0.035	0	0.064	-	0.061	-	0.110	-	0.042	-	0.041	-
PO ₄ ³⁻ (mg/l)	<0.01	<0.2	<0.01	-	<0.01	-	<0.01	-	<0.01	-	<0.01	-
COD/KMnO ₄ (mg/l)	3.226	20	0.393	5	0.393	-	0.787	-	0.551	5	0.236	-
F (mg/l)	0.2100	0	0.0905	-	0.0452	-	0.0707	-	0.0608	-	0.1000	-
As (mg/l)	0.0010	<0.2, (0.00)	0.0037	<0.2, (0.00)	0.0036	-	0.0039	-	0.0035	<0.2, (0.00)	0.0039	-
Mn ²⁺ (mg/l)	0.0050	<0.5	0.0305	<0.5	0.0375	-	0.0425	-	0.0427	<0.5	0.0529	-
Coliform (MPN/100ml)	5,400		350		220		280		180		140	

*Left Column : by Laboratory Test, Right Column : by Simple Test **As () : by Hironaka Kit